

Message

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Subject: NRMRL Weekly Report – October 24

I am pleased to report that Cindy and Alice are in RTP today for our third and final informal NRMRL Recognition Ceremony and team-building activity with our Air and Energy Management Division. Yesterday, we held our annual year-end NRMRL All-Hands meeting, during which we discussed FY18 research accomplishments, business and health/safety updates, Hatch Act reminders (from Justina Fugh, OGC), StRAP updates, and an initial roll-out of our NRMRL Strategic Plan for FY19-FY22.

NRMRL Weekly Report – October 24

Hot Topics:

Discussions with water technology company related to PFAS treatment, October 19. Tom Speth and Jonathan Pressman participated in a call with representatives from [Evoqua Water Technologies](#) to discuss collaboration opportunities on treatment systems for PFAS. Evoqua contacted EPA as a follow-up to the Fayetteville (NC) Town Hall held on August 14. The company is interested in engaging with EPA on sharing drinking water treatment data, testing air emissions at sites where their treatment systems are operating, and evaluating the efficiencies and releases from their granular activated carbon reactivation efforts.

State and Technical Support: Technical assistance to Idaho Department of Environmental Quality (DEQ) on lead and water quality. On October 22, Darren Lytle participated in a call with representatives from **Idaho DEQ** to address technical questions regarding public water systems using sodium hypochlorite, chemical impacts to water quality related to lead release, and potential impacts associated with the Lead and Copper Rule.

Technical Support: Technical assistance to Region 8 for corrosion control study in Denver, CO. Mike Schock and Darren Lytle received a request from Region 8 to review and comment on the Denver Water Optimal Corrosion Control Treatment Model. This is a follow up to the discussions held last year (reported September 6, 2017) in which Mike and Darren provided feedback and answered questions regarding the city's corrosion control study results. Denver conducted a Lead and Copper Rule pilot plant study after a 2012 action level exceedance.

Presentation on PFAS removal for the Environmental Council of the States (ECOS)-EPA call, October 29. Craig Patterson will present, "Effectiveness of Point-of-Use/Point-of-Entry Systems to Remove Widefield Aquifer Per- and

Poly- Fluoroalkyl Substances from Water,” during the ECOS-EPA bimonthly PFAS call. The presentation will discuss a RARE project with Region 8 to determine the effectiveness of commercially-available point-of-use/point-of-entry reverse osmosis treatment units and granular activated carbon adsorbents on the removal of PFAS from water. This will be an abbreviated version of the presentation Craig will be delivering at the Water Quality Technology Conference in November (*which completed ANP on October 5*). **Statute: Safe Drinking Water Act**

Last Week/Updates:

Keynote speaker and workshop presentation at conference, Chiapas, Mexico, October 3-5. Jim Jetter served as an invited keynote speaker at the 3rd International and 5th National Conference, *University, Health, and Environment: Science, Technology and Innovation*, organized by the Universidad Autónoma de Chiapas (UNACH) and the Universidad de Ciencias y Artes de Chiapas (UNICACH). Jim presented on EPA’s current household energy research program, discussed international standards for cookstoves, and conducted a workshop on laboratory testing for the UNICACH Renewable Energy Research Team. This research is conducted under A-E. **Statute: Clean Air Act**

Volunteering at Beach Sweeps event, October 20. Thomas O’Connor volunteered at the Clean Ocean Action’s 33rd Annual Beach Sweeps event. A group of volunteers from EPA’s Edison Environmental Center participated in clean-up efforts at the South Amboy/Sayreville Beach location (near Edison, NJ). The group included employees from ORD, OLEM’s Emergency Response Team, and Region 2. Volunteers were provided with data cards to record the types of debris picked up; this information is used in annual reports and to advance federal, state, and local programs for reducing litter. The non-profit Clean Ocean Action launched the Beach Sweeps program to rid beaches of unsightly and harmful debris, and has grown to over 7,000 volunteers at over 65 sites along the New Jersey coast.

This Week:

State Support: DASEES workshop with State of Louisiana, Franklinton, LA, October 22-23. Tim Canfield met with representatives from Region 6, U.S. Department of Agriculture, and **Louisiana Commissioner of Agriculture** and dairy farmers for another workshop as part of the Louisiana dairy project. This project is using NRMRL’s Decision Analysis for a Sustainable Environment, Economy, and Society (DASEES) to develop alternative approaches for addressing environmental, social, and economic challenges of the small dairy industry in Louisiana. This workshop focused on a summary of cost information and the feasibility of proposed options to address the issues identified by dairy farmers and other stakeholders at previous workshops. NRMRL has held three workshops with Louisiana stakeholders and two workshops with various experts, and has verified the cost information with private and public-sector entities. These efforts, conducted under SHC, are part of a RESES project with Region 6; a RARE project is planned as a follow-up.

NRMRL hosting visiting scientists from Mexico in RTP, NC, October 22-26. Jim Jetter is hosting a postdoc and a university technician from the National Autonomous University of Mexico (UNAM) at EPA in RTP. The individuals are visiting EPA to expand their expertise through a variety of cookstove laboratory testing procedures and extensive cookstove research applications and associated protocols. **Statute: Clean Air Act**

Field work at Oklahoma State University (OSU), Chickasha, OK, October 23. Christopher Marks is collecting soil samples for antibiotic resistance research at OSU’s South Central Research Station. This work is in support of the SSWR Nutrient Sources and Contributions to Impairment Project, which focuses on transport of water and nutrients in an agricultural field undergoing different fertilizer application strategies. **Statute: Clean Water Act**

Presentations at Marquette University short course, Milwaukee, WI, October 23-24. Laura Boczek is speaking at a short course workshop, Emerging Contaminants in Water and Wastewater, organized by the University’s College of Engineering. Laura is presenting, “Opportunistic Pathogens in Premise Plumbing” and “Efficacy of Inactivation of *Legionella pneumophila* by Multiple Wavelength UV-LED Disinfection and Their Inactivation Mechanisms.” Attendees of this short course include engineering students, public health professionals, and other industry, academic, and government representatives. Laura’s research on pathogens in drinking water is supported under SSWR. **Statute: Safe Drinking Water Act**

Participation at Great Lakes Beach and Water Safety Conference, Independence, OH, October 23-25. Orin Shanks is chairing a session on “Molecular Methods for Water Quality Testing,” and leading a discussion on the implementation of microbial source tracking quantitative polymerase chain reaction (qPCR) methods in the Great Lakes region. He is also meeting with staff from the **Michigan Department of Environmental Quality** to provide technical assistance on these methods. Mano Sivagenesan is also attending the conference. This research is conducted under the SSWR. **Statute: Clean Water Act/ Beach Act**

Next Week/Upcoming Activities:

Panel participation at 7th Africa Water Week Conference, Libreville, Gabon, October 26-November 1. During a panel discussion, Mark Rodgers and Julius Enriquez will present their work on the EPA/USAID laboratory capacity building project with the Ghana Water Company Limited in Accra, Ghana. Mark will discuss the microbiological aspects of monitoring drinking water, and Julius discuss the chemistry of monitoring and laboratory capacity building. The laboratory capacity building project was initiated in 2012, and has included several training sessions for laboratory managers and other water utility professionals from West African nations. The Africa Water Week Conference is attended by over 1000 participants from governments, regional institutions, international partners, private sector, the scientific community, civil society, and media from all over the world to discuss and collectively seek solutions to Africa’s water resources and sanitation challenges.

Presentation at American Institute of Chemical Engineers (AIChE) Annual Meeting, Pittsburg, PA, October 28-November 2. Andres Argoti (post-doc) and Bayou Demeke will present, “Assessment of Urban Sustainability: An Exploration based on Two Metrics for the Chicago Metropolitan Area,” at the AIChE Annual Meeting. This study deploys two metrics, Ecological Footprint (EF) and Green Net Metropolitan Product (GNMP), for exploring the sustainability trend of the Chicago Metropolitan Area between 1990 and 2015. The EF is rooted in an ecological accounting system, measuring consumption in terms of land area required, while the GNMP is an economic measure of sustainability that integrates information on economic and environmental conditions of the region. This work is conducted under SHC. The AIChE Annual Meeting is the premier educational forum for chemical engineers and is attended by academic, government, and industry experts. **Statute: Pollution Prevention Act**

State Support: Technical assistance and training on quantitative polymerase chain reaction (qPCR) method, Cincinnati, OH, October 29-November 1. The **Michigan Department of Environmental Quality (MDEQ)** is working to implement molecular technologies to characterize human fecal pollution at recreational beaches. To provide technical support for these efforts, Orin Shanks, Mano Sivaganesan, and Cathy Kelty will provide training to the scientists from MDEQ on the use of the human-associated HF183/BacR287 qPCR method. This week-long training event will include seminars, laboratory sessions, and a data analysis workshop designed to provide the experience and information necessary to implement a molecular microbial source tracking qPCR procedure. This research is conducted under SSWR. **Statute: Safe Drinking Water Act/Beach Act**

Superfund and State Support: Site Visit to Eagle Industries Superfund Site, Midwest City, OK, October 31. At the request of Region 6 and the **Oklahoma Department of Environmental Quality**, Randall Ross and Steve Acree will demonstrate tools and techniques for evaluating groundwater flow at the Eagle Industries site. Soil and groundwater at the site are known to be contaminated with chlorinated solvents formerly used for degreasing during facility operations. **Statute: CERCLA (Superfund)**

Upcoming tours of EPA’s Experimental Stream Facility (ESF), Milford, OH. Chris Nietch and Christina-Bennett Stamper will give upcoming tours of ESF to several local groups:

- On October 30, for attendees of the North American Lake Management Society Conference (which is being held in Cincinnati). The tour will showcase ESF and the East Fork Watershed Study (EFWS), which are recognized tools for conducting eco-toxicological and watershed management research and development. An overarching theme for research using the ESF/EFWS is monitoring, modeling, and new economic tools to cost-effectively reduce the impacts of excess nutrients in receiving waters.

- On October 30-November 1, for four groups of Xavier University students enrolled in Ecology Lab courses. These annual tours allow students to observe a working ecology laboratory. ESF staff will discuss the relevance of watershed management research, role of small stream ecosystems, and relevance of the mesocosm studies conducted at ESF.

This research is supported under SSWR. **Statute: Clean Water Act**

Participation in NACE Diesel Day event, Washington, DC, November 6-7. Christopher Marks will serve as a session moderator for the [NACE Diesel Day event](#) as part of the Corrosion Technical Series. This event will feature presentations by leaders across industry and government discussing impacts of diesel storage tank corrosion and related research efforts. He will also attend a research planning meeting with NRMRL's Fran Kremer and Ryan Haerer (from OLEM's Office of Underground Storage Tanks), along with representatives from other federal agencies the following day. The NACE Foundation raises funds to promote awareness and create educational opportunities for the future, global corrosion workforce.

Upcoming Presentations:

Presentations at the Society of Environmental Toxicology and Chemistry (SETAC) Annual Meeting, Sacramento, CA, November 4-8. Several NRMRL scientists will present at the [SETAC North American 39th Annual Meeting](#):

- "High frequency monitoring of cyanoHABs dynamics," Joel Allen
- "Combining Bayesian networks and conceptual models for Superfund remediation support," John Carriger
- "The science of sustainability? Scaling the interaction between resilience and robustness," Brian Dyson
- "Use of passive samplers for the detection of extra cellular algal toxins in stream mesocosms, lakes, and streams," Heath Mash
- "Designing and implementing a remedy effectiveness assessment for Thomson and Scanlon Reservoirs in the St. Louis River area of concern," Marc Mills
- "Assessing avoidance and other behaviors in development of a sediment avoidance test for assessing remediation of contaminated sediments," Roger Yeardley
- "Biases and conflicts of interests in environmental science: Development of practical solutions," Tim Canfield.

Additionally, John Carriger will serve as co-chair for a session on Bayesian analysis, and Marc Mills will chair sessions on PFAS remedy effectiveness and Great Lakes science. Roger Yeardley will participate in a meeting of the Ohio Valley SETAC chapter as a member of the Board of Directors.

Presentations at the American Water Works Association (AWWA) Water Quality Technology Conference (WQTC), Toronto, Canada, November 11-15. Several NRMRL researchers will present at [WQTC](#):

- "Effectiveness of Point-of-Use/Point-of-Entry Systems to Remove Widespread Aquifer Per- and Poly- Fluoroalkyl Substances (PFAS) from Water," Craig Patterson (*submitted through ANP on October 22*)
- "Investigating Why Orthophosphate Fails to Reduce Pb in Partial Lead Service Lines: Digging the Answer in the Scales," Mike Schock (*will be submitted through ANP*)
- "Sampling for Lead in Drinking Water: Approaches and Applications," Darren Lytle (*will be submitted through ANP*)
- "Actual vs. Predicted, Lead Scale Observations from the Field," Jennifer Tully (Pegasus) (*submitted via ANP*)
- "Comparison of Two Methods for the Enumeration of *Legionella pneumophila* from Potable Water Samples," Hodon Ryu
- "A Biological Treatment Approach to Simultaneously Reduce Ammonia, Arsenic, Iron and Manganese," Darren Lytle.

Additionally, Tom Speth will moderate the session *Parameters of Pollution in Potable Reuse: Predicting and Prevention*. NRMRL researchers are co-authors on various other presentations as well.

Recent Publications:

News article: PFOS treatment in Greensboro, NC, drinking water. The Greensboro News & Record [published a story](#) on the city's plan to update its water treatment plant to incorporate a powdered activated carbon (PAC) system to address

PFOS in its source water. NRMRL has been providing technical support on activated carbon treatment to the city; Tom Speth was contacted by the reporter to provide some technical background on the system. He was not quoted in the article. The story ran on October 6.

Awards and Recognition:

AWWA *Opflow* Publications Award. Darren Lytle is a co-author on the 2017 article, "Lead in Drinking Water: Past, Present, and Future," in AWWA's *Opflow*. This article won the AWWA's 2018 *Opflow* Publications Award, which recognizes the contribution of information directed at operating personnel of water utility systems in the areas of science, technology, and water supply operations as published in *Opflow*. Darren's research on lead in drinking water is supported under SSWR. **Statute: Safe Drinking Water Act.**

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